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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,053	08/09/2001	Haruhiko Ikeda	P/1071-1453	4134

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EXAMINER

HARAN, JOHN T

ART UNIT PAPER NUMBER

1733

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/927,053

**Applicant(s)**

IKEDA, HARUHIKO

**Examiner**

John T. Haran

**Art Unit**

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28,29,32 and 33 is/are rejected.
- 7) ☒ Claim(s) 30,31 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This action is in response to the amendment filed on 11/12/03.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 28, 29, 32, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaynes (U.S. Patent 5,542,602).

Gaynes is directed to a method of forming a bonded structure wherein the completed bonded structure comprises metal bonding pads (electrodes) located on substrates coated with an alloying metal (low melting point material) bonded together by a conductive adhesive. The conductive adhesive comprises a conductive filler, such as silver particles, and a thermosetting adhesive (organic binder). The alloy metal coating has a low melting point, below 237 degrees Celsius, which is consistent with the meaning of low melting point as defined in the specification. The bonded structure includes a fusion bond between the surfaces of the conductive particles and the electrodes with the conductive particles penetrating the surface of the electrodes and alloy metal coating (See Column 3, lines 57-61; Column 4, lines 33-54; Column 5, lines 29-65; and Figure 13B). Gaynes anticipates claims 28, 29, 32, and 33.

***Allowable Subject Matter***

4. Claims 30, 31, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 30 and 31, the prior art of record fails to suggest the claimed structure, particularly the combination of a low melting point Sn-Pb alloy coating on the electrodes with the conductive filler being present within the Sn-Pb alloy coating.

Gaynes teaches having a silver-indium, silver-tin, gold-tin, gold-indium, copper-tin, or copper-indium system (Column 4, lines 8-19) but provides no suggestion of a lead-tin system. In fact Gaynes specifically teaches away from using lead because it is an environmental pollutant (Column 6, lines 5-8).

Regarding claim 34, the prior art of record fails to suggest the claimed structure, particularly the conductive filler comprising solder particles.

While it is generally well known and conventional to have solder particles as conductive fillers in a conductive adhesive, Gaynes specifically teaches that the conductive filler is either silver, copper, or gold (Column 3, lines 58-61) and there is no suggestion of using solder particles for the filler in Gaynes.

***Response to Arguments***

6. Applicant's arguments filed 11/12/03 have been fully considered but they are not persuasive.

Gaynes clearly teaches a bonded structure with electrodes coated with a low melting point alloy metal wherein the electrodes are connected with a conductive adhesive with conductive silver particles that are partially located within the electrodes and alloy metal coating.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takemura et al (U.S. Patent 6,184,577) teaches a bonded structure wherein substrates with electrodes are connected with a conductive adhesive with conductive particles such as silver or solder particles. There is no suggestion of having a low melting point material coated on the electrodes or the conductive particles being within the electrodes or coating.

Itagaki et al (US 2002/0008321) teaches substrate wherein substrates with electrodes are connected with conductive adhesive with conductive particles that pierce the electrode (See Figure 1), however there is no suggestion that the electrodes are coated with a low melting point material.

Art Unit: 1733

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(703) 305-0052 or (571) 272-1217 as of 12/19/03**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Art Unit: 1733

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



John T. Haran



JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300